Exemption No. 6634A

UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
RENTON, WASHINGTON 98055-4056

In the matter of the petition of **Franklin Products, Inc.** for exemption from § 25.853(a) of Title 14, Code of Federal Regulations	**Regulatory Docket No. 28768**

PARTIAL GRANT OF EXEMPTION

By letters dated December 9, 1998, and February 12, 1999, from Mr. Jeffrey M. Picard, Franklin Products, Inc., 153 Water Street, P.O. Box 117, Torrington, CT 06790, petitioned for a two-year time extension to existing partial grant of exemption No. 6634. It had been issued to permit a two-year exemption from vertical burn test requirements for water-based adhesives used in the manufacture of Franklin Products' seat cushions. That time-limited exemption had been granted in recognition of the fact that solvent-based adhesives which had hitherto been utilized, and which do comply with regulatory requirements, are becoming no longer available. That time-limited exemption was issued to permit research and phase-in of water-based adhesives.

The petitioner requests relief from the following regulations:

> Section 25.853(a) requires that materials in occupied compartments must meet the applicable (i.e., 12-second vertical burn test for seat cushions) test criteria prescribed in Part I of Appendix F.

Related Sections of the Federal Aviation Regulations (FAR):

> Section 25.853(c) requires that seat cushions, in addition to meeting the (vertical burn) test requirements of § 25.853(a), must also meet the (oil burner) test requirements of Part II of Appendix F.

ANM-99-098-E
The petitioner's supportive information is as follows:

Franklin Products, Inc., respectfully requests a two-year extension to partial grant of exemption No.6634. This exemption grants partial exemption from the vertical burn test requirements of § 25.853(a) for seat cushion sub-assemblies constructed by Franklin Products with adhesives that do not meet the requirements of § 25.853(a). This request for a time extension is necessary to continue our work to find an adhesive that is safe for the environment, our employees, and that also passes the § 25.853(a) burn test.

"In accordance with the requirements of the partial grant, Franklin Products was required to continue to work with adhesive manufactures to develop an adhesive which complies with all FAR requirements. This request for extension contains the supportive information for the extension.

"Franklin Products, along with its adhesive suppliers, have been working on a developmental program to come up with an adhesive which is compliant with § 25.853(a) as well as being safe to the environment and its employees.

"FRANKLIN PRODUCTS' DEVELOPMENT SUMMARY

"Working with nine adhesive suppliers, and evaluating sixteen different products with varying formulations, our findings are as follows: of the sixteen evaluated, ten were water-based and six were solvent-based.

"WATER-BASED ADHESIVES

"Of the water-based adhesives tested, five were plural-component adhesives and five were single component. All but one of the water-based adhesives failed the testing in varying degrees. Half of the test subjects did show promise, and are being evaluated further. Five of the adhesives failed both the strength and flammability criteria. This included both single and plural-component adhesives. Of the five that did show promise, four are plural-component and one was a single-component adhesive. Plural-component adhesives rely on a fire retardant being placed in the activator stream. This process is very hard to control, and without repeatable results, is not qualitative with respect to the burn test requirement and tear strength. One of the single-component adhesives tested did pass the burn test, but was marginal with regard to tear strength. Both Franklin Products and Sim Alpha Adhesives are currently working on this adhesive, and hope to begin trials some time in 1999. It should be noted that all the water-based adhesives tested are environmentally safe and do not pose a severe health risk to our employees and the public. This data is based on its chemistry and the use of water as a carrying agent.

"SOLVENT-BASED ADHESIVES

Of the solvent-based adhesives tested, two passed the flammability requirements while four failed the flammability requirement. The four that failed do not show merit to conduct further testing. The two that did pass are questionable at this time due to the use of n-Propyl-Bromide (nPB) as a carrying agent and 1.2 Epoxy Butane as one its components. Both of these are toxic chemicals subject to the reporting requirements of section 313 of Title III and of 40 CFR 372. It should be noted that 1.2 Epoxy Butane is
a known carcinogen, and its use would put our employees at risk. The component n-Propyl-Bromide (nPB) is currently under review by the Stratospheric Protection Division, Office of Atmospheric Programs, U.S. Department of Environmental Protection (EPA). The EPA has been reviewing the listing of n-Propyl-Bromide (nPB) under the Significant New Alternatives Policy (SNAP) program for various applications. Presently, the EPA is reviewing the available toxicological information and environmental implications (ozone depletion potential) as determined by the Montreal Protocol Open Ended Working Group. Based on the EPA's assessment to date, they believe that additional information is needed before a regulatory decision can be formulated with regard to both the toxicological and environmental issues. The EPA plans to issue a proposal in 1999 with regard to the use of nPB. It should be noted further that the EPA authored a memo stating their uncertainties with regard to nPB, and that users should exercise "extreme caution." The memo further states that use now is not an indicator of any future determination regarding nPB.

"HISTORICAL TEST DATA

"A thorough review was conducted of all § 25.853(c) testing conducted with regard to adhesives and their effect on cushion flammability. The purpose of this review was to assure Franklin Products that its use of a water-based adhesive would not prove to be detrimental to the safety of the public. This review has also provided us with base-line limits in our development program. It should be noted that nearly all of the burn tests conducted were witnessed by an FAA designated engineering representative. Of a total of 60 § 25.853(c) burns conducted, 38 tests were conducted using water-based adhesives. Of the 38 witnessed tests, one burn test failed. That failure was attributed to the dress cover fabric used. It should also be noted that the test specimens assembled with the water-based adhesive had an average weight loss of 5.2 percent and an average burn length of 8.18 inches.

"Twenty-two of the tests conducted contained cushions assembled with a solvent-based adhesive which passed the § 25.853(a) burn test. Those solvents are now banned by the Montreal Protocol. Of the twenty-two tests conducted, two failed. The failures were attributed to the dress cover fabric used. It should be noted that the average weight loss on these cushion assemblies were 6.9 percent, with an average burn length of 10.48 inches.

"CONCLUSION"

In comparison to the currently approved solvent-based adhesives, the cushion assemblies tested with water-based adhesives on the average had better test results with regard to weight loss and

burn across length for each § 25.853(c) test conducted. "Franklin Products and its suppliers are continuing their research for adhesives that pass the § 25.853(a) burn test requirement as well as being environmentally and user safe. We believe that changing our present adhesive at this time to an adhesive that is under review by the EPA as a known carcinogen, and not knowing the environmental impact of its carrying agent, would not be in the public's or our employee's best interest.

"We are trying to do what is in the best interests of the FAA, our airline customers, our employees, and the environment. By most measures, the easiest course of action for us would be to use the bromide-based adhesive. This would eliminate the need for an FAA exemption, allow us to remove the exemption statement from our product and focus on the commercial aspects of our business. We are persistent in pursuing the exemption path however, because we believe it is in the best interests of our employees and the environment and poses no risk to the flying public."

A summary of Franklin Products, Inc.'s petition was published in the Federal Register on April 20, 1999 (99 FR 19402). No comments were received.

The FAA's analysis/summary is as follows:

Although disappointed that the petitioner, in conjunction with various adhesives suppliers, has been unsuccessful during the two-year period of the initial partial grant of exemption to develop a fully compliant adhesive that is also commercially viable, the FAA is nevertheless satisfied that the petitioner is exercising due diligence in that ongoing effort.

In consideration of the foregoing, I find that a partial grant of exemption is in the public interest, and is determined to have no more than a negligible effect on the level of safety provided by the regulations. Therefore, pursuant to the authority contained in 49 U.S.C. §§ 40113 and 44701, delegated to me by the Administrator (14 CFR 11.53), Franklin Products' petition for exemption from the vertical burn test requirements of § 25.853(a) for Franklin Products' seat cushion assemblies constructed with non-compliant water-based adhesives is granted until May 30, 2001.

Emphasis is made that other provisions of Exemption No. 6634, together with its conditions and limitations, remain the same and are applicable to this exemption. This amendment is part of, and shall remain attached to, Exemption No. 6634.

Issued in Renton, Washington, on May 28, 1999.

/s/ Donald L. Riggin
Donald L. Riggin
Acting Manager
Transport Airplane Directorate
Aircraft Certification Service, ANM-100